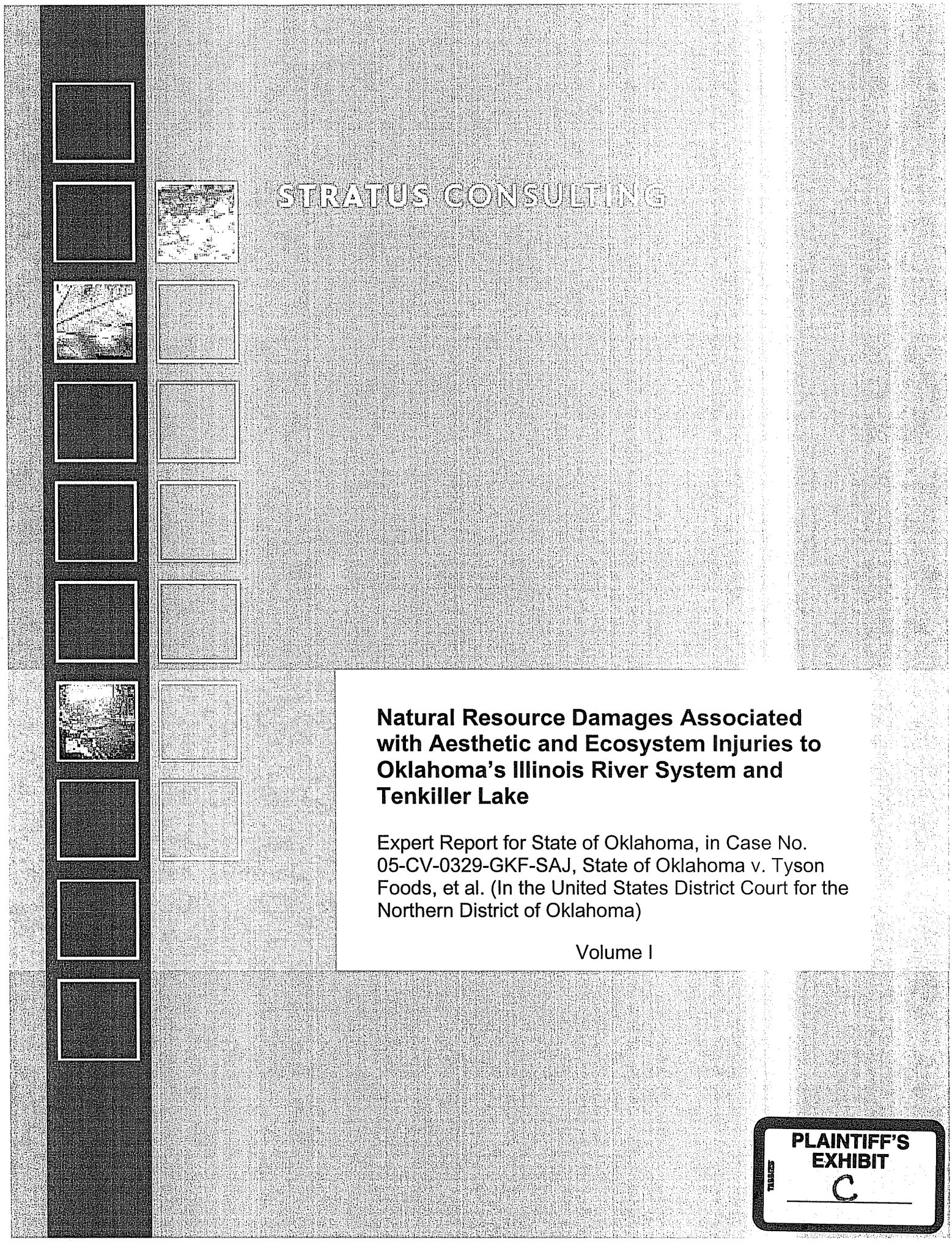

STRATUS CONSULTING

Natural Resource Damages Associated with Aesthetic and Ecosystem Injuries to Oklahoma's Illinois River System and Tenkiller Lake

Expert Report for State of Oklahoma, in Case No. 05-CV-0329-GKF-SAJ, State of Oklahoma v. Tyson Foods, et al. (In the United States District Court for the Northern District of Oklahoma)

Volume I

Fundamentally, all CV surveys have three components in common. First, they describe the *problem*. Then, they describe a *solution*. And, finally, they ask a *valuation question* where respondents choose whether or not they are willing to pay the proposed cost to them for the solution to solve the problem.

The Problem: The survey narrative described the Illinois River system, including Tenkiller Lake, and explained how water quality, the ecosystem, and aesthetics have changed since around 1960. Then, it explained that these changes have come about because spreading of poultry waste and other human activities have introduced large amounts of phosphorus into the watershed, which in turn has resulted in excess algae. Next, participants were informed that the State of Oklahoma has asked for an injunction that would ban all future spreading of poultry waste in the basin. It was pointed out that even after a ban is in place, runoff and leachate of large amounts of phosphorus remaining on the land from past spreading would continue to affect the waterways. Therefore, compared with conditions around 1960, algae would continue to be excessive in the river and lake for many years (Engel, 2008a, 2008b, 2008c).

The Solution: The solution introduced in the survey was a program to treat land and waters in the Illinois River watershed with alum, a substance that bonds with phosphorus and makes it unavailable to plants, including algae. The survey noted that many states have successfully used a similar program to reduce algae.[5] The survey narrative explained that with alum treatments, it would take about 10 years for the river and 20 years for the lake to return to 1960 conditions, compared with 50 and 60 years, respectively, if alum was not applied. Hence, alum treatments would reduce the period over which the injuries would be present by 40 years for both the river and lake. Respondents were told that if alum treatments were implemented, the cost would be a one-time tax added to their state income tax bill next year.

The presentation of the alum treatment program allowed respondents to make a choice about a well-defined, realistic tradeoff. Either they could greatly reduce the injury and pay the tax for the alum treatments or accept the natural recovery without the alum treatment and use their money for other purposes. In Chapter 2 we discuss how tradeoffs of this type, which is the standard method used by economists, can be used to measure people's value for improvements to natural resources. While the State is not actually proposing this specific alum treatment program at this time, the choice was posed to the respondent as an actual choice. Posing choices in this manner is standard practice in CV surveys (Mitchell and Carson, 1989; Boyle, 2003).

The Valuation Question: The valuation question was posed as a referendum where respondents were asked to vote "for" or "against" the alum treatments. The one-time tax amount was varied

5. Discussion of alum treatments of lakes and citations to the literature on the topic can be found in Cooke et al. (2005).